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Remarks on the somatometry of *Sorex coronatus* Millet, 1828 from the northern Iberian Peninsula (Mammalia, Insectivora)

by

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ABSTRACT

Somatometric data of *S. coronatus* from northern Iberian Peninsula are given. 239 specimens (133 ♂♂, 106 ♀♀), captured in Quinto Real (Navarra) during 1984–1986 were analysed. Monthly variation of the somatic parameters according to the relative age was studied. The results obtained show that winter reduction ("Dehnel's phenomenon") does not occur in *S. coronatus*, as observed in other Soricinae. This is attributed to the adaptation of the species to atlantic environmental conditions.

INTRODUCTION

In the Iberian Peninsula, Millet's shrew *Sorex coronatus* is distributed from Galicia (province of Lugo) to western Catalonia (Arán and Bohí valleys). The information published on somatometry of the species in this territory is scarce and scattered (MALEC & STORCH 1964; VERICAD 1970; NORES 1979; LOPEZ-FUSTER 1983). The present study shows new data on the somatometric characteristics of *S. coronatus* in northern Iberia, according to the relative age and the month of capture.

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MATERIAL AND METHODS

The analysed sample is formed by 239 individuals (133 ♂♂, 106 ♀♀), captured in Quinto Real (Navarra) during 1984–1986. The relative age of the specimens has been determined according to tooth wear and the month of capture: individuals in their first calendar year (1K); individuals in their second calendar year (2K). The following somatic parameters were studied: head and body length (HBL), tail length (TL), hind foot length (HFL) and body weight (W).

RESULTS AND DISCUSSION

The definitive TL and HFL are acquiered early in the life of the animal. The juveniles show average values of TL significantly larger that those of 2K individuals (1K: $\bar{x}$=43.99, s=2.39, int=36.0–49.0, n=99; 2K: $\bar{x}$=42.61, s=2.43, int=37.0–48.0, n=138; d=4.35, p<0.001). There are no significant differences in HFL between the two relative age classes (1K: $\bar{x}$=12.74, s=0.40, int=11.8–13.6, n=98; 2K: $\bar{x}$=12.84, s=0.35, int=11.8–13.7, n=141).

In general there is an increase of HBL (Table 1) that shows fluctuations which, for 1K individuals, are attributed to the successive incorporation of juveniles to the population throughout the breeding season. In the second calendar year, the most noticeable fluctuations take place from July on. This fact is due to senile mortality that disminishes the proportion of 2K individuals in the captures.

Weight progressively increases from April to March, with some discrete fluctuations, as for exemple in September, attributed to the appearance of juveniles in the population (Table1). From March to June, 2K individuals show a gradual and marked increase in W. This fact coincides with the period of maximum reproductive intensity for the species in this territory (see LOPEZ-FUSTER et al. 1988). Subsequently, the average of this parameter decreases throughout the year.

In the analysed sample, HBL nor W show a winter decrease, similar to that described by DEHNEL (1949) for other species of *Sorex*. According to this author, the skull case height (SCH) varies throughout the year simultaneously the the mentioned somatic parameters. Aiming to check this phenomenon in the analysed population, monthly variation of SCH was studied (Table 1). The SCH averages of juveniles are significantly higher than those corresponding to 2K individuals (1K: $\bar{x}$=5.28, s=0.17, int: 4.9–5.7, n=88;. 2K: $\bar{x}$=4.99, s=0.15, int=4.6–5.3, n=135; d=27.79, p<0.001). Between December and January there is a decrease of SCH, which conversely to *S. araneus*, does not extend through the winter season. From January on the means of this parameter are more or less stable in adult individuals (Table 1).

According to these results, the Dehnel's phenomenon does not occur in *S. coronatus* in Navarra, as after winter there is no significant increase of the analysed parameters, similarly to that described for *S. araneus* (DEHNEL 1949; BOROWSKI & DEHNEL 1952; NIETHAMMER 1956; SCHUBARTH 1958; PUCEK 1964; LOPEZ-FUSTER 1983). The winter reduction observed in some Soricinae has been understood as an adjustment to unfavourable climates (DEHNEL 1949; NIETHAMMER 1956; MEZHZHERIN 1964). The absence of this phenomenon in *S. coronatus* agrees with its environmental requierements, atlantic type, as well as their lesser adjustment to rigorous climates compared to *S. araneus*.

TAB. 1.

Monthly values of head and body length (HBL, in mm), body weight (W, in g) and skull case height (SCH, in mm) of *Sorex coronatus* from Navarra, according to the relative age (1K and 2K individuals).

		1K				2K			
	month	n	x̄	s	range	n	x̄	s	range
HBL	J					24	69.35	4.21	62.0–75.0
	F					21	70.55	2.78	65.0–77.0
	M					26	71.61	3.86	63.0–81.0
	A	9	62.11	3.41	56.0–67.0	23	70.89	3.10	66.0–76.5
	M	5	69.00	1.87	67.0–72.0	10	74.05	2.53	70.0–77.0
	J	15	68.87	3.50	59.0–74.0	4	72.37	1.11	71.0–73.5
	J	14	68.07	3.47	61.0–72.0	8	73.63	3.76	68.5–81.0
	A	14	70.21	3.07	63.0–74.0	3	68.00	5.29	62.0–72.0
	S	8	68.69	3.59	64.0–75.0	5	74.30	4.66	67.0–78.5
	O	14	69.43	4.20	64.0–80.0	3	76.33	1.53	75.0–78.0
	N	6	67.83	1.72	66.0–71.0	2	73.50	0.71	73.0–74.0
	D	11	71.59	5.28	61.0–80.0	1	81.00	–	–
W	J					21	7.87	1.00	5.8– 9.4
	F					23	8.32	0.84	6.6–10.0
	M					26	8.26	0.94	6.5–10.0
	A	9	5.44	0.66	4.6–6.8	24	9.44	0.95	7.0–11.5
	M	5	6.68	0.40	6.0–7.0	11	10.03	0.57	9.0–11.0
	J	13	7.28	0.97	5.7–9.3	5	10.36	1.60	8.3–12.3
	J	14	7.24	0.81	6.0–8.8	8	9.09	0.72	8.0–10.0
	A	14	7.48	0.81	6.3–9.5	4	8.30	0.65	7.6– 9.1
	S	9	6.62	0.71	5.3–7.8	5	9.42	1.97	7.2–11.6
	O	14	7.86	0.87	7.0–9.6	4	8.67	1.49	6.5– 9.8
	N	6	7.90	0.72	7.0–8.7	2	8.65	1.20	7.8– 9.5
	D	10	8.00	0.84	6.5–9.4	1	8.60	–	–
SCH	J					22	4.92	0.15	4.7– 5.1
	F					22	5.03	0.08	4.9– 5.2
	M					27	4.95	0.19	4.6– 5.3
	A	8	5.36	0.17	5.2–5.7	25	4.98	0.13	4.8– 5.2
	M	5	5.38	0.22	5.1–5.6	11	5.10	0.13	4.9– 5.3
	J	12	5.33	0.13	5.0–5.5	5	5.04	0.17	4.8– 5.2
	J	13	5.33	0.12	5.1–5.5	8	4.94	0.12	4.8– 5.1
	A	12	5.33	0.17	5.1–5.6	3	4.93	0.15	4.8– 5.1
	S	8	5.21	0.14	5.0–5.4	5	4.96	0.11	4.8– 5.1
	O	14	5.19	0.18	4.9–5.5	4	5.12	0.12	5.0– 5.3
	N	7	5.17	0.09	5.1–5.3	2	5.10	0.20	4.9– 5.3
	D	9	5.19	0.20	5.0–5.6	1	4.90	–	–

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LITERATURE

Borowski, S. & A. Dehnel. 1952. Angaben zur Biologie der Soricidae. *Ann. Univ. M. Curie-Sklodowska* 7: 305–448.

Dehnel, A. 1949. Studies on the genus *Sorex* L. *Ann. Univ. M. Curie-Sklodowska* 4: 17–102.

Lopez-Fuster, M.J. 1983. Sobre los géneros *Sorex* Linnaeus, 1758, *Suncus* Ehrenberg, 1833 y *Crocidura* Wagler, 1832 (Insectivora, Soricidae) en el nordeste de la Peninsula Ibérica. *Tesis Doctoral. Universidad de Barcelona.*

Lopez-Fuster, M.J., E. Castien & J. Gosalbez. (1988). Reproductive cycle and population structure of *Sorex coronatus* Millet, 1828 (Insectivora, Soricidae) in the northern Iberian Peninsula. *Bonn. zool. Beitr.* 39: 163–170.

Malec, F. & G. Storch. 1964. Einige Kleinsäuger (Mammalia: Insectivora, Rodentia) aus Nordspanien. *Z. Säugetierkunde* 29: 220–230.

Mezhzherin, V.A. 1964. Dehnel's phenomenon and its possible explanation. *Acta theriol.* 8: 95–114.

Niethammer, J. 1956. Das Gewicht der Waldspitzmaus, *Sorex araneus* Linné, 1758, im Jahreslauf. *Säugetierkdl. Mitt.* 4: 160–165.

Nores, C. 1979. Nuevas aportaciones al conocimiento de la subfamilia Soricinae (Mammalia, Insectivora) en los distritos cantábrico y lusitano. *Tesis de Licenciatura. Universidad de Oviedo.*

Pucek, Z. 1964. Morphological changes in the Shrews kept in captivity. *Acta theriol.* 8: 137–166.

Schubarth, H. 1958. Zur Variabilität von *Sorex araneus* L. *Acta theriol.* 2: 175–202.

Vericad, J.R. 1970. Estudio faunístico y biológico de los Mamíferos montaraces del Pirineo. *Publ. Centr. Pirenaico Biol. Exp.* 4: 231 pp.